

between 3:30 and 4 P.M. and closing at 6 P.M., shrivelling as they close; stamens 12-25, their filaments deeper pink than the petals, anthers bright yellow, short; style cleft $\frac{1}{3}$ of its length; the 3 valves of the capsule falling on ripening, scattering the rugose seeds. (The seed was not correctly figured in the Asa Gray Bulletin, Dec. 1899, p. 116: the seeds of *T. rugospermum* should have rugose lines, that of *T. teretifolium* should be smooth.)

It is in prime condition the last week in July.

To distinguish the two species the following comparison is given:

T. teretifolium has long anthers, short style lobes, black, shining seeds, flowers open once, from noon till 3 P.M.

T. rugospermum has short anthers, long style lobes, gray minutely rugose seeds, flowers open once, from 3:30 till 6 P.M. The two plants look much alike. The former occurs more to the East, the latter, further West.

WINONA, MINN.

✓ *Solidago petiolata* Miller and some other golden-rods

KENNETH K. MACKENZIE

In his various works and different editions Philip Miller (1691-1771) had a very considerable number of golden-rods. For a long time he did not adopt the Linnaean binomial system, but in the concluding years of his life he issued two works, the eighth edition of his Gardeners Dictionary published in 1768, and the sixth edition of his Abridgement of the Gardeners Dictionary published in 1771, in which he published a number of binomial names for American species of *Solidago*. His descriptions are usually good. In fact compared with those in Aiton Hortus Kewensis they are wonderfully good. However, it is evident that he did not know the species, and was much perplexed by them. He himself wrote "It is very difficult to settle the specifick differences of those now growing in the English gardens, for of late years there has been a great number of these and also of Asters raised from seeds, which have been sent from North America, from whence most of the sorts here mentioned originally came. But as the seeds have been gathered by persons little acquainted with the science of botany, so they

have generally been sent mixed together, which, when sown, the plants have risen promiscuously. So that in order to ascertain the species, the seeds should be saved very carefully and distinctly sown, to see if the plants arising from each do retain their difference."

Miller Abridgement Gardeners Dictionary *Solidago* ed. 5 1763; ed. 6 1771.

As a result he seems to have named several of our common species several times, examples being the various names proposed by him for *Solidago altissima* L. and *Solidago sempervirens* L. and the instance hereinafter discussed. In dealing with his work it must also be remembered that he was primarily a horticulturist and not a botanist. Another source of trouble with him is that the species treated in the Abridgement of the Gardeners Dictionary are to a certain extent not found in the Gardeners Dictionary and vice versa. And another most exasperating source of trouble is that in the sixth edition of the Abridgement he copied the concluding remarks for his last seven species erroneously from the fifth edition, getting in the wrong concluding remarks for each one of these species. One therefore has to refer to the fifth edition of the Abridgement or to the eighth edition of the Gardeners Dictionary to find out what he really meant. Two of his names which here appeared (*Solidago linearia* and *Solidago obtusifolia*) are names which have been overlooked by botanists and which do not appear in Index Kewensis. The present paper is devoted to ascertaining their proper use, as also the proper use of *Solidago petiolata* Miller.

Solidago petiolata Miller

✓ In the seventh edition of his Gardeners Dictionary published in 1759 Miller had the following golden-rod:

"31. *Solidago caule paniculato, racemis confertis, foliis inferioribus lineari lanceolatis petiolatis, caulinis sessilibus glabris.* Woundwort with a paniculated Stalk, clustered Spikes of Flowers, the lower Leaves linear, Spear-shaped on Foot Stalks, and those on the Stalks smooth, fitting close. . . . The thirty-first sort grows naturally at *Philadelphia*; the lower Leaves are smooth, entire, narrow, and Spear-shaped; they are three Inches and a Half long, and Half an Inch broad, standing upon long Foot Stalks. The Stalks are round, smooth, and rise three

Feet high; they are garnished with very small smooth Leaves which are entire and fit close to the Stalks. The Flowers grow in a close Panicle at the Top of the Stalk; they are of a bright yellow colour, and appear in September."

It appeared as Species No. 24 in the Fifth edition of his Abridgement of the Gardeners Dictionary (1763) with essentially the same description. The above description was copied in the eighth edition of the Gardeners Dictionary (1768) and the species there No. 29 was named *Solidago petiolata*. It does not appear in the sixth edition of the Abridgement (1771). Gray avoided dealing with this name in the Synoptical Flora, altho he did deal with most of Miller's names.

In the British Museum there is a specimen labeled *Solidago petiolata* Miller. I have a photograph of this kindly sent me by Dr. Rendle. It is a specimen of *Solidago odora* Ait., and in no way agrees with Miller's description, any more than any other specimens of *Solidago odora* do. This specimen was gathered in the Chelsea Gardens in 1762. It is self-evidently to be disregarded.

Anyone familiar with the golden-rods in the general region of Philadelphia will at once see that Miller's description is an excellent one of *Solidago stricta* Ait. (Hort. Kew. 3:216 1789)¹ and that it applies to no other species. And this conclusion is strengthened when one recalls that Aiton's material of *Solidago stricta* came from Miller, who he said first cultivated it in 1758.

✓

Solidago linearia Miller

In the fifth edition of his Abridgement of the Gardeners Dictionary (1763), Miller had the following description of a golden-rod:

"26. *Solidago caule paniculato, pedunculis erectis, foliis linearibus glabris integerrimis sessilibus.* Golden-rod with a paniced stalk, erect foot stocks to the flowers and smooth,

¹ *Solidago stricta* Ait "19. S. caule erecto glabro, foliis caulinis lanceolatis integerrimis glabris margine scabris; radicalibus serratis, racemis paniculatis erectis, pedunculis glabris.

"Willow-leav'd Golden-rod.

"Nat. of North America

"Cult. 1758, by Mr. Philip Miller

"Fl. September."

Aiton Hort. Kew. 3:216. 1789.

narrow entire leaves. . . . The twenty-sixth sort sends out smooth paniced stalks two feet high, garnished with linear, smooth, obtuse leaves, which are entire, and fit close the stalk. The flowers terminate the stalk in loose panicles, standing erect."

The above species did not appear in the 8th edition of the Gardeners Dictionary (1768), but in the sixth edition of the Abridgement (1771) we find this same description repeated except that the leaves are described as spear-shaped and rough instead of linear and smooth. This species was here described as species No. 24 (by error No. 25 in second part of his description) and was given the name *Solidago linearia*.

The above species did not appear in the fourth edition of his Abridgement published in 1754 (where he called the genus *Virga Aurea*), nor did it appear in the seventh edition of the Gardeners Dictionary published in 1759. No specimen could be found in the British Museum.

It seems to me that the species described is *Solidago stricta* Ait.

Solidago obtusifolia Miller

In the fifth edition of his Abridgement of the Gardeners Dictionary (1763) Miller had the following golden-rod:

"28. *Solidago caule paniculato, racemis sparsis, pedunculis erectis, foliis, inferioribus lanceolatis serratis caulinis obtusis integerrimis sessilibus.* Golden-rod with a paniced stalk, the spikes of flowers thinly disposed, the foot-stalks erect, the lower leaves spear-shaped and sawed, but those on the stalks obtuse, fitting close. . . . The twenty-eighth sort has smooth, pale, green stalks, which rise four feet high, and are thinly garnished with oblong, entire, smooth, blunt-pointed leaves, fitting very close. The lower leaves are large, spear-shaped, oblique and sawed on their edges. The stalks are terminated by simple racemi, which are thinly disposed in a corymbus, but their foot-stalks are erect."

In the sixth edition of his Abridgement (1771) he copied word for word the first part of the above description as Species No. 26 giving to it the name *obtusifolia*. However, when it came to copying his concluding remarks he copied the wrong ones, as follows: "The twenty-sixth sort hath purplish stalks which rise three feet high, and are closely garnished with rough spear-shaped leaves, slightly sawed on their edges, end-

ing in acute points. The stalks are terminated by erect racemi of flowers, growing in clusters, of a bright yellow colour." This in the fifth edition form the concluding remarks of his Species No. 27 otherwise described as follows: "27. *Solidago caule paniculato, racemis erectis, floribus confertis foliis lanceolatis serratis scabris*. Golden-rod with a paniced stalk, erect spikes with flowers in clusters, and spear-shaped, rough, sawed leaves." This does not appear in his other works and was never given a binomial name. I think it was based on a specimen of his own *Solidago conferta* (*S. speciosa* Nutt.)

It seems to me that *Solidago obtusifolia* Miller also represents *Solidago stricta* Ait. No specimen of it could be found in the British Museum.

I am therefore taking up the very appropriate name *Solidago petiolata* Miller, and treating *Solidago linearia* Miller, *Solidago obtusifolia* Miller and *Solidago stricta* Ait. as synonyms.

NEW YORK.

Joseph Edward Kirkwood¹

Dr. Joseph Edward Kirkwood, Professor of Botany in the University of Montana, died suddenly on August 16, 1928, in his 57th year, while engaged in research at the University Biological Station at Yellow Bay, Flathead Lake, Montana. After graduation from Pacific University, in Oregon in 1898, he studied at Princeton University, Columbia University, and The New York Botanical Garden, receiving the degree of A. M. from Princeton in 1902 and that of Ph. D. from Columbia in 1903. His doctorate thesis on "The Comparative Embryology of the Cucurbitaceae" was published in Volume 3 of the Bulletin of The New York Botanical Garden. From 1901 to 1907, he was, successively, instructor, assistant professor, and professor of botany in Syracuse University. From 1907 to 1909, Dr. Kirkwood was associated with the Continental-Mexican Rubber Company, in studying the availability of the guayule shrub as a source of rubber, spending one year at Torreon, Mexico, and the next at the Desert Laboratory of the Carnegie Institution at Tucson, Arizona. Since 1909, he had been connected with the botanical and forestry work of the University of Montana. His summers were devoted chiefly to

¹ Reprinted from the Journal of the New York Botanical Garden.